# Australian Adventure Activity

# Abseiling & Climbing Standard

**Contents Overview**

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# Introduction

## About these standards

*The Australian Adventure Activity Standards (AAS) are a voluntary best-practice framework for safe and responsible planning and delivery of outdoor adventure **activities** with **dependent participants**.*

*The standards provide guidance on safety and other aspects of responsible activity delivery, such as respect for the environment, cultural heritage and other users. The standards are not a full legal compliance guide, nor are they a "how to" guide or field manual for outdoor activities. The standards do not provide guidance on providing a high-quality experience over and above safe and responsible delivery.*

### Do these standards apply to me?

*The Australian AAS are specifically designed to help activity **providers** who are conducting **activities** involving **dependent participants**, to provide a safe and responsible experience and meet their legal obligations. It is for each **provider** to determine based on their own individual circumstances, if they are working with **dependent participants** or not.*

*Refer to Part I – Core Standard for additional information.*

### Are these standards legally binding?

*The Australian AAS are voluntary, not legal requirements. However, they do frequently refer to specific laws and regulations which are legally binding.*

*While the Australian AAS are voluntary, some **land manager**s and other organisations may require compliance as a condition of obtaining a licence, permit or other permission.*

*Refer to Part I – Core Standard for additional information.*

### Structure and interpretation of the standards

*Part I of these standards includes guidance that applies to all adventure **activities**. It sets out a common approach to risk management that applies irrespective of the specific **activity** being undertaken. Part II includes guidance on specific adventure **activities**. For any given **activity**, both Part I and the relevant section of Part II that applies to that specific **activity** should be consulted.*

*The standards cover only those **activities** specifically listed in Part II. While Part 1 of the standards may be useful in managing **risk** generally for other activities, they may not reflect best practice for such other activities.*

*The following key words occur frequently throughout the standards:*

> Shall*: used where a provision is mandatory, if the **provider** is operating fully in accordance with the standards.*

> Should*: used where a provision is recommended, not mandatory. It indicates that the **provider** needs to consider their specific situation and decide for themselves whether it applies or is relevant.*

> Can/cannot*: indicates a possibility and capability.*

> May/need not*: indicates a permission or existence of an option.*

But are not limited to: *used to indicate that a list is not definitive and additional items may need to be considered depending on the context.*

*The following formatting is used throughout:*

Operative provisions are in normal roman text.

*Discussion is in italics.*

*Defined words are in **bold**. A full list of definitions is in the **Glossary**.*

*Examples are in* orange italics*.*

*In document references are in **bold underlined green**. References to other parts of this document are by section heading title. External references are in* plain green*.*

*"Key words" are in* blue*.*

## Disclaimer

*All reasonable attempts have been made to ensure these standards are accurate, relevant and current at the date of publication. Nevertheless, the standards are only advisory and general in nature, and may not be suitable for all contexts.*

*They are recommendations for voluntary application by adventure activity **providers**. They are not directly binding on any person or organisation and have no direct legal force.*

*The Australian AAS will not cover each and every circumstance of an adventure **activity**. Even when they are adhered to, they cannot entirely eliminate the **risk** or possibility of loss or injury.*

*This publication and the information it contains is made available on the express condition that the publisher, together with the authors, consultants and advisers who have assisted in compiling and drafting this publication and the Australian AAS:*

- *are not rendering professional advice to any person or organisation;*

- *and make no warranties with respect thereto; and*

- *to the maximum extent permitted by law, disclaim all liability and responsibility for any direct or indirect loss, damage or liability which may be suffered or incurred by any person as a consequence of reliance upon anything contained in or omitted from this publication.*

## Creation

*These standards were developed with the input from a wide range of outdoors and adventure activity experts with extensive field experience. They draw heavily on state- and territory-specific standards previously in place across Australia. The development process included work by a range of technical expert working groups, as well as open consultation throughout the community of activity providers and other experts.*

*Further details of the creation of the Australian AAS can be found at* www.australianaas.org*.*

*It is intended that the standards will be regularly updated to reflect changing practice and better understanding over time. Updates will be noted on the website listed above.*

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## Activity

This document is to be used together with Part I – Core Standard.

### Abseiling

Abseiling is descending vertical or near vertical **natural surfaces** or **artificial surfaces** using ropes and descending friction devices to manage the decent. It is also known as rappelling. Abseiling can occur on a single-pitch or multi-pitch. In most situations, abseiling involves descending a rope by walking backwards down a near vertical surface. **Forward abseiling** descents are also possible.

### Climbing

Climbing is ascending, traversing or descending vertical or near vertical **natural surfaces** or **artificial surfaces**. The term rock climbing is also used for climbing on **natural surfaces** and at times used to describe climbing on **artificial surfaces**. For the purposes of this standard climbing *may* include ascending a fixed rope and climbing in climbing gyms.

The risk associated with dependent participants, climbing or abseiling without a means of a belay system is considered unacceptable, except for where a climber is **bouldering** within a reasonable **fall height**.

There are three types of climbing covered in this standard: **top-rope climbing**, **lead climbing** and **bouldering**.

Top rope climbing is conducted on a single **pitch**.

Lead climbing is further separated into **traditional climbing** and **sports climbing**. It can be conducted on a single **pitch** or **multi-pitch**.

**Bouldering** is a form of climbing activity, limited in height and for which fall safety can be achieved by the provision of an impact absorbing system, by a **spotter** providing control of a fall or by a combination of these measures.

## Exclusions

Activities that are not covered by this AAS are:

- Challenge Ropes course activities
- Climbing involving mountaineering and ice climbing
- Improvised roping activities during bushwalking on difficult or trackless terrain
- Activities associated with Camping while on overnight or extended activities.

## Related activities

Abseiling and climbing is also engaged in as a component of associated activities including **canyoning** or **caving**. In these cases, the relevant associated AAS *shall* be used in conjunction with this AAS.

**Challenge course** activities - refer to Challenge Course activity standard.

Where **bushwalking** occurs to access climbing and abseiling sites, then the Bushwalking activity standard *shall* be complied with.

Where camping occurs associated with abseiling, the Camping activity standard *shall* be complied with.

### Abseiling and Climbing Appendixes

**Appendix 1 – Common equipment**

**Appendix 2 – Equipment standards**

**Appendix 3 – Equipment load ratings**

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# Management of risk

## Management of risk

Refer Part I - Core Standard Management of Risk provisions.

# Planning

Also refer to Part I – Core Standard

## Activity plans

### Abseil & Climb activity plans

Activity plan considerations *should* include *but are not limited to*:

- o   aims and objectives of activity
- o   interest, abilities and experience of the participants
- o   the intended route to the site
- o   the access to start & finish locations and throughout the activity
- o   identifying site specific hazards and risks
- o   environmental conditions
- o   the expected weight of equipment need to be carried
- o   supervision requirements specific to the site
- o   surface type, stability and soundness of any features and anchors
- o   characteristics of the route(s) *e.g. difficulty, height, pitch, overhangs*
- o   availability of **waiting areas**.

## Emergency management planning

### Abseil & Climb emergency management plan

Also refer to Part I – Core Standard 'emergency management planning' section.

A non-participating contact *should* be used as part of the emergency management plan for all activities and *shall* be used if providing activities in **remote areas** or where there is only one **activity leader**.

# Participants

Also refer to Part I – Core Standard

## Pre-activity communication

### Abseil & Climb information provided pre-activity

Pre-activity information *should* clearly communicate:

- o   expectations and activity conditions

An appropriate pre-activity assessment *should* be conducted to ensure participants have the necessary pre-requisite skills & knowledge to undertake the activity.

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## Abseil & Climb participant health and wellbeing

Potential measures to assist in providing positive participant experiences *may* include *but are not limited to*:

- o providing the activity as an option so it is 'challenge by choice'
- o providing a scaled level of experience to build participants level of skill, knowledge and experience
- o providing real choice in terms of activity entry and exit options
- o providing a briefing of risks and how those risks are managed
- o considering the group dynamics when grouping participants
- o providing emotional support through a supportive environment and positive rapport
- o building and maintaining positive relationships within the group
- o reducing as much as practical any discomfort from the equipment used.

# Environment

Also refer to Part I – Core Standard

## Environment related planning

### Abseil & Climb environment considerations

#### Natural surfaces

Any approved installation of permanent artificial anchors in natural surfaces *shall* be undertaken by appropriately **competent** person.

Any approved modification or removal of **natural surfaces** *shall* be undertaken by appropriately **competent** person.

Site safety considerations for **natural surfaces** include *but ares not limited to*:

- o stability of the cliff face
- o stability of features (*e.g. loose rocks*)
- o availability of natural features to use for anchors
- o safety requirements for access and egress including the likelihood of a fall from height before and after participation
- o ability to retrieve ropes without dislodging or causing rockfalls.

#### Artificial surfaces

Permanent **artificial surfaces** constructed specifically for use in activities *shall* comply with relevant construction standards which *may* include *but are not limited to*:

- o AS 2316.1—2009 Artificial climbing structures and challenge courses Part 1: Fixed and mobile artificial climbing and abseiling walls
- o AS 3533.1-2009: Design and construction
- o AS 3533.1-2009/Amdt 1-2011: Design and construction
- o AS 3533.2-2009: Operation and maintenance
- o AS 3533.2-2009/Amdt 1-2011: Operation and maintenance
- o AS 3533.3-2003: In-service inspections
- o EN 795: Personal fall protection equipment – anchor devices
- o National Fire Protection Association (NFPA) standards

Temporary **artificial surfaces** *should* comply with either permanent **artificial surfaces** relevant requirements or be assessed by a **competent** person that it is fit for purpose for the activity.

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Compliance with the AS 2316.1-2009 Australian Standard *may* include *but is not limited to* inspection, testing and maintenance requirements.

# Abseil & Climb - severe weather

The following table details the:

- •        current Australian weather warnings
- •        associated weather for each warning
- •        mainland warning trigger points for issuing warnings for strong winds and hail.

Bureau of Meteorology weather warnings and associated weather Table:

| Severe Weather warning | Thunderstorm warning | Coastal Waters Wind Warning | Tropical Cyclone Advice: Watch or warning |
|---|---|---|---|
| High tides | | | |
| Large surf | | | |
| Heavy rain/flash flooding | Heavy rain/flash flooding | | |
| Blizzards | Blizzards | | |
| Strong winds Wind >63 km/h Gusts >90 km/h | Strong winds Gusts >90 km/h | Strong winds Wind >48 km/h or >26 knots | Strong winds Wind >62 km/h or >=34 knots |
| | Tornadoes | | |
| | Hail Hail >=2cm | | |
| | Lightning | | |

## Abseil & Climb severe weather triggers

**Trigger points** *shall* be based on the Bureau of Meteorology weather warnings and actual weather conditions.

The risk management plan and emergency management plan *should* include guidance on trigger points and associated actions for:

- o   severe weather warnings
- o   thunderstorm warnings
- o   coastal waters wind warnings
- o   tropical cyclone advice: watch and warning
- o   extreme cold temperature
- o   extreme hot temperatures.

Actions for severe weather warnings *may* include *but are not limited to*:

- o   avoid locations effected by tides or surf
- o   avoiding areas that have the potential for flash flooding
- o   preparations to avoid the risks associated with blizzards
- o   moving to areas that are protected from strong winds
- o   managing risks of flying or falling items during strong winds.

Actions for thunderstorm warnings *may* include *but are not limited to*:

- o   avoiding areas that have the potential for flash flooding
- o   preparations to avoid the risks associated with blizzards
- o   moving to areas that are protected from strong winds
- o   managing risks of flying or falling items during strong winds
- o   moving to areas that are protected from hail
- o   preparations to avoid the risks associated with lightning.

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Actions for coast waters wind warnings *may* include *but are not limited to*:

- o moving to areas that are protected from strong winds
- o managing risks of flying or falling items during strong winds.

Actions for tropical cyclone warnings *may* include *but are not limited to*:

- o evacuating to a safe location
- o avoid locations effected by tides or surf
- o moving to areas that are protected from strong winds
- o managing risks of flying or falling items during strong winds
- o avoiding areas that have the potential for flash flooding.

# Bushfire, prescribed fire and fire danger

Refer Core Standard section - Bush fire, prescribed fire and fire danger.

# Water crossings and flooding

## Abseil & Climb water and river crossings

During severe weather or thunderstorms or when they are forecast, areas likely to experience flash flooding *should* be avoided.

# Wildlife safety

## Abseil & Climb wildlife safety

Procedures *should* be in place to minimise the risks associated with wildlife that *may* be encountered.

The types of wildlife encounters that *may* need to be considered include *but are not limited to*:

- o bees
- o wasps
- o snakes
- o spiders
- o hazardous plants *e.g. stinging nettle*

Considerations in reducing the above wildlife encounters *may* include *but are not limited to*:

- o briefing participants in how to respond to encounters
- o conducting a site assessment before use
- o using alternative locations if necessary.

# Environmental sustainability procedures

Environmental sustainability **procedures** *may* include *but are not limited to*:

- o use of geological features or artificial anchors where installed in preference to living trees as anchors
- o minimising the use of living trees used as anchors
- o use of 'tree protectors' and/or wide tape slings when using living trees as anchors
- o locate activity area and waiting areas to reduce repeated soil and root compaction around trees
- o the use of temporary edge protection
- o the installation of permanent artificial anchors or equipment only being carried out with the permission of the Land Owner or Land Manager
- o avoiding the modification of any natural surfaces or removal of natural features
- o avoiding the removal of selected rock surface vegetation

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- o the modification of natural surfaces or removal of natural features only being carried out with the permission of the Land Owner or Land Manager
- o the use of existing site access tracks wherever possible
- o avoid using the edge of access tracks
- o choosing sites wherever possible that have a rocky base and top that can better tolerate groups
- o choosing sites that are appropriate for the group size
- o actively managing groups to minimise impact
- o choosing shaded **waiting areas** so shade is not sought in inappropriate areas
- o avoiding blocking access to other users with equipment or belayers
- o negotiating with other users regarding shared use of a site
- o use removable protection in a manner that avoids damage to and protects natural surfaces
- o using chalk sparingly, only when necessary and where customary and/or allowed.

Also refer Core Standard – Environmental sustainability procedures.

# Equipment and logistics

Also refer to Part I – Core Standard

## Abseil & Climb equipment requirements

Procedures *shall* be in place to ensure appropriate clothing for the expected and foreseeable weather conditions is available.

Procedures *shall* be in place to ensure appropriate footwear for the expected and foreseeable terrain is available.

Footwear *shall* be fit for purpose.

Equipment listed below *shall* be manufactured for use in the context of the activity to a recognised standard as listed in **appendix 2**:

- o Accessory cord
- o Artificial removable anchors including but not limited to chocks, cams, nuts, hexes, bolts
- o Artificial fixed anchors used in artificial climbing or abseiling structures
- o Ascending devices
- o Belay devices
- o Carabiners or other connectors
- o Descending devices
- o Dynamic rope
- o Harnesses
- o Helmets
- o Lanyards
- o Pulleys
- o Slings
- o Static rope

The use of twin or half ropes *may* depend on the individual provider's policy and procedures.

Appropriate vertical rescue equipment *shall* be readily accessible.

Vertical rescue equipment *may* include *but is not limited to*:

- o ascending devices
- o belay device
- o knife

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- o pulleys
- o prusik loops
- o rope long enough for the longest **pitch**
- o slings.

Where practicable, an additional rope long enough for the longest **pitch** *should* be considered for rescue purposes.

Procedures *shall* be in place to ensure a drinking water supply is available.

Example equipment lists can be found in **appendix 1**.

# Abseil & Climb use of equipment

All equipment *shall* be used with reference to the manufacturers' instructions.

Training in the use of equipment used *shall* be provided to activity leaders and participants.

The functional compatibility between all equipment used *shall* be confirmed before being used.

An appropriate helmet *shall* be worn for all climbing on **natural surfaces** and all **abseiling**.

An appropriate helmet *should* be worn when climbing on **artificial surfaces**.

Consideration *shall* be given to if a helmet needs to be worn when **non-actively participating**.

An appropriate harness *shall* be used.

## Equipment loading

Equipment will have a **Stated Strength** that *may* or *may not* include a **safety factor**. The type of **Stated Strength** rating needs to be known before use to ensure equipment is safely loaded. (**Refer appendix 3 – equipment load ratings for more details**).

Equipment with the **Stated Strength** providing the **Minimum Breaking Strength** (MBS) *shall* have a suitable **Safety Factor** applied and a **Safe Working Load** (SWL) calculated.

Equipment with the **Stated Strength** providing the **Safe Working Load** (SWL) *shall* be loaded only to a maximum of the **Safe Working Load** (SWL).

## Connections

*Unintentional disconnections have been a major cause of fatalities and injuries in rope protected activities.*

Connection methods, equipment and systems used *shall* be periodically reviewed.

Considerations when determining connect methods, equipment and systems include but *are not limited to*:

- o the type of anchor or anchors being used
- o the redundancy available should an anchor fail
- o what needs to be attached to the harness *e.g. direct connection to rope or a descender device*
- o the experience and context of who is completing the connection of the rope to the harness or descender device
- o the availability of a **competent** person to supervise or check the connection that is completed by a participant.

## Connectors – practices relating to use

*Accepted practices in the use of connectors are provided in this section.*

Use of connectors with loads applied at three or more points *shall* have an increased **Safety Factor** applied. (Refer **appendix 3 – equipment load ratings**).

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Carabiners *shall* be used so that no load is intentionally across the gate.

Systems that have cyclical loads constantly applied *should* be inspected periodically.

## Connecting anchors

*Accepted practices when connecting to anchors are provided in this section.*

**Connection to a fixed anchor:**

- o   if no sharp edges use of rope, tape or cord tied directly to anchor
- o   torqued screwlink, or triple action auto locking carabiner, or screw gate carabiner
- o   **non-locking** carabiners for short term connection where there are redundant anchors
- o   wire gate carabiners *shall* not be used on keyhole plates bolt hangers.

**Connection to a placed protection:**

- o   **non-locking** carabiners are suitable when multiple pieces of placed protection are used in a lead climbing belay system.

**Connection to a master anchor point:**

- o   triple action auto locking carabiner or screwgate carabiner.

Carabiners for use at lead climbing protection points (i.e. with quickdraws or slings) *may* be **non-locking**.

## Connecting people

*Accepted practices when connecting people to safety systems are provided in this section.*

**Connection to an activity leader's harness working on or near an edge:**

- o   rope directly tied to harness or triple action auto locking carabiner
- o   screw gate carabiner with secondary redundant connection.

**Belay rope connection to harness of a participant/a climber or abseiler competent in tying a suitable knot:**

- o   rope directly tied into harness and where practicable the knot to be checked by second person.

**Belay rope connection to harness:**

- o   redundant connections *shall* be used using a combination of the listed options:
    - o   captive eye triple action auto locking carabiner or triple action auto locking carabiner or screw gate carabiner used to connect rope to harness or
    - o   rope directly tied into harness with knot checked by competent person.

**Connection to an abseiler's harness via a top belay:**

- o   rope directly tied into harness or captive eye triple action auto locking carabiner or screw gate carabiner.

**Connection between a belayers or abseiler's harness and descender:**

- o   triple action auto locking carabiner or screw gate carabiner.

Methods more secure than those listed in above sections are acceptable.

## Chest harnesses
Chest harnesses are only used in combination with a sit harness.

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Consideration of the use of a combination chest and climbing sit harness or a full body harness *should* occur:

- o for forward facing abseils
- o when inversion is intended or likely
- o when the security of a sit harness cannot be relied upon due to body shape
- o when the security of a sit harness cannot be relied upon if the person were to experience a pre-existing health, medical or personal condition episode (*e.g. epilepsy*)
- o very young participants.

## Other equipment - use considerations

**Dynamic rope** *shall* be used for the belay rope:

- o when **lead climbing**
- o when a **fall factor** greater than 0.3 is possible
- o when "cows-tails" and lanyards are used at or above anchor height.

A procedure regarding participant supplied equipment *should* be developed.

Where a participant supplies any personal climbing or abseiling equipment, this *shall* comply with the above e**quipment requirements** and **equipment use** sections and be serviceable.

Wearing gloves *should* be considered when abseiling.

## Rescue systems

Anchor systems and belay systems *shall* be rigged for a timely and effective rescue.

Considerations in rigging systems for rescue include *but are not limited to*:

- o load direction
- o load magnitude
- o ability to raise the person
- o ability to lower the person
- o ability to conduct sideways hauls
- o ability to enable an **activity leader** to complete a **contact rescue**.

# Abseil & Climb maintenance of equipment

All equipment *shall* be checked that it is serviceable before each activity or before being used.

All equipment *should* be inspected periodically that it is serviceable.

Appropriate procedures *shall* be in place for inspections and determining the time periods between inspections.

All anchors on **artificial surfaces** used *should* be periodically inspected as per any relevant 'artificial surfaces' construction standard by an appropriately **competent** person.

Artificial anchors periodic inspection time frame *should* be not greater than every 3 months.

Considerations for how regular the assessment of all anchors occurs *may* include *but are not limited to*:

- o the characteristics of the site
- o how many people use the site and how regularly
- o any manufacturers' recommendations where relevant
- o the equipment being used.

Equipment and inspection records *shall* conform with any legislative or regulatory requirements.

A record of inspection of anchors on **artificial surfaces** *shall* be maintained.

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An equipment record *should* be maintained.

Where used, an equipment record *should* record *but is not limited to* the:

- item individual identifier
- date of purchase
- date of inspections
- recommended or maximum lifespan.

A retirement of equipment policy *should* be developed.

Considerations for a retirement of equipment policy *may* include *but is not limited to*:

- type of use
- frequency of use
- prevailing conditions when used
- actual deterioration, wear and tear
- extreme usage events or patterns (*e.g. impacts, 'catches'*)
- age
- years in service
- manufactures recommendations.

## Abseil & Climb storage of equipment

Activity equipment *shall* be stored in accordance with the manufacturer's recommendations or instructions.

Where no manufacturer's recommendations exist, considerations for storage of equipment *may* include *but is not limited to*:

- equipment is clean and dry
- the storage is free from chemicals
- the storage is free from damp conditions
- the storage is free from environmental exposure including Ultra Violet (UV) light and avoids extremes of temperature
- the storage is free from interference of fauna or vermin.

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# Leadership

Also refer to Part I – Core Standard

## Naming conventions

### Abseil & Climb naming conventions

The activity leader naming convention enables this activity standard to be related to Part I – Core Standard requirements.

It is important to clarify specific roles and competencies required to avoid the possibility of:

- a "assistant guide" leading a group when "guide" **competencies** are required
- a "assistant guide" or "guide" leading a group when "instructor" **competencies** are required.

All activity leader competencies needed for a particular role *shall* be clearly defined.

An abseiling and/or climbing instructor, has the competence to instruct participants so that they may undertake the activity independently.

An abseiling and/or climbing guide, has the **competence** to lead participants throughout the whole activity.

An abseiling and/or climbing assistant guide, has some but not all of the **competencies** of an abseiling and/or climbing guide, so can only lead participants through part of the activity under **direct supervision**.

The leadership naming conventions are:

''Abseiling guide", ''Climbing guide", "Abseiling instructor" and "Climbing instructor" *can* be the equivalent to **Leader** in Part I – Core standard.

## Competencies

*This section outlines the **competencies** that activity leaders should have.*

### Competencies overview

*The Australian AAS refers to units from the Sport, Fitness and Recreation Training Package for descriptive statements of the knowledge and skills required of **activity leaders**.*

*The Training Package units are used for the sole purpose of providing descriptions for the knowledge and skills required. It is not intended to imply or require that specific formal training, assessment or qualification is the only means of gaining or recognising knowledge and skills.*

***Providers** can recognise **activity leaders** as having the 'ability to apply knowledge and skills to achieve expected results' (i.e. **competencies**) in a number of different ways as detailed in Part I – Core Standard Recognition of competence.*

*The Training Package units listed can be found by searching for the units on the training.gov.au/Home/Tga website. The code provided with the unit name assists in this search.*

### Abseil & Climb competencies

Also refer to competencies section in Part I - Core Standard.

For activities that also involves bushwalking to the site, refer to the Bushwalking activity standard.

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## Abseiling natural surfaces competencies

The following table outlines the recommended level of competence activity leaders *should* have when leading **abseiling** on **natural surfaces**:

| Activity type | Abseiling Assistant guide (Assistant Leader) Units describing skills and knowledge | Code (or equivalent) | Abseiling guide (Leader) Units describing skills and knowledge | Code (or equivalent) | Abseiling Instructor (Leader) Units describing skills and knowledge | Code (or equivalent) |
|---|---|---|---|---|---|---|
| **Common abseiling units** | | | | | | |
| | Safeguard an abseiler using a single rope belay system | SISOABN202A | Safeguard an abseiler using a single rope belay system | SISOABN202A | Safeguard an abseiler using a single rope belay system | SISOABN202A |
| | Operate communications systems and equipment | PUAOPE002B | Operate communications systems and equipment | PUAOPE002B | Operate communications systems and equipment | PUAOPE002B |
| | | | Plan for minimal environmental impact | SISOOPS304A | Plan for minimal environmental impact | SISOOPS304A |
| **Single-pitch – Natural surfaces** | | | | | | |
| | All units listed in Part I – Core Standard, all common abseiling units plus | | All units listed in Part I – Core Standard, all common abseiling units plus | | All units listed in Part I – Core Standard, all common abseiling units plus | |
| | Apply single pitch abseiling skills on natural surfaces | SISOABN303A | Apply single pitch abseiling skills on natural surfaces | SISOABN303A | Apply single pitch abseiling skills on natural surfaces | SISOABN303A |
| | | | Establish ropes for single pitch abseiling on natural surfaces | SISOABN304A | Establish ropes for single pitch abseiling on natural surfaces | SISOABN304A |
| | | | Perform vertical rescues | SISOVTR301A | Perform vertical rescues | SISOVTR301A |
| | | | Guide abseiling on single pitch natural surfaces | SISOABN305A | Guide abseiling on single pitch natural surfaces | SISOABN305A |
| | | | | | Instruct abseiling on single pitch natural surfaces | SISOABN408A |
| **Multi-pitch – natural surfaces** | | | | | | |
| | All units listed in Part I – Core Standard, all common abseiling units, all single pitch natural features units plus | | All units listed in Part I – Core Standard, all common abseiling units, all single pitch natural features units plus | | All units listed in Part I – Core Standard, all common abseiling units, all single pitch natural features units plus | |

| Activity type | Abseiling Assistant guide (Assistant Leader) Units describing skills and knowledge | Code (or equivalent) | Abseiling guide (Leader) Units describing skills and knowledge | Code (or equivalent) | Abseiling Instructor (Leader) Units describing skills and knowledge | Code (or equivalent) |
|---|---|---|---|---|---|---|
| | All activity leaders to have minimum of 'guide' multi-pitch competencies | | Apply multi pitch abseiling skills on natural surfaces | SISOABN406A | Apply multi pitch abseiling skills on natural surfaces | SISOABN406A |
| | | | Establish ropes for multi pitch abseiling on natural surfaces | SISOABN407A | Establish ropes for multi pitch abseiling on natural surfaces | SISOABN407A |
| | | | Guide abseiling on multi pitch natural surfaces | SISOABN409A | Guide abseiling on multi pitch natural surfaces | SISOABN409A |
| | | | Perform complex vertical rescues | SISOVTR402A | Perform complex vertical rescues | SISOVTR402A |
| | | | Coordinate emergency responses | SISXEMR402A | Coordinate emergency responses | SISXEMR402A |
| | | | Implement and monitor occupational health and safety policies | SISXOHS402A | Implement and monitor occupational health and safety policies | SISXOHS402A |
| | | | | | Instruct abseiling on multi pitch natural surfaces | SISOABN510A |

## Abseiling artificial surfaces competencies

The following table outlines the recommended level of competence activity leaders *should* have when leading **abseiling** on **natural surfaces**:

| Activity type | Abseiling Assistant guide (Assistant Leader) Units describing skills and knowledge | Code (or equivalent) | Abseiling guide (Leader) Units describing skills and knowledge | Code (or equivalent) | Abseiling Instructor (Leader) Units describing skills and knowledge | Code (or equivalent) |
|---|---|---|---|---|---|---|
| **Common abseiling units** | | | | | | |
| | Safeguard an abseiler using a single rope belay system | SISOABN202A | Safeguard an abseiler using a single rope belay system | SISOABN202A | Safeguard an abseiler using a single rope belay system | SISOABN202A |
| | Operate communications systems and equipment | PUAOPE002B | Operate communications systems and equipment | PUAOPE002B | Operate communications systems and equipment | PUAOPE002B |
| | | | Plan for minimal environmental impact | SISOOPS304A | Plan for minimal environmental impact | SISOOPS304A |

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| Activity type | Abseiling Assistant guide (Assistant Leader) Units describing skills and knowledge | Code (or equivalent) | Abseiling guide (Leader) Units describing skills and knowledge | Code (or equivalent) | Abseiling Instructor (Leader) Units describing skills and knowledge | Code (or equivalent) |
|---|---|---|---|---|---|---|
| **Single-pitch – artificial surfaces** | | | | | | |
| | All units listed in Part I – Core Standard, all common abseiling units plus | | All units listed in Part I – Core Standard, all common abseiling units plus | | All units listed in Part I – Core Standard, all common abseiling units plus | |
| | Apply single pitch abseiling skills on artificial surfaces | SISOABA302A | Apply single pitch abseiling skills on artificial surfaces | SISOABA302A | Apply single pitch abseiling skills on artificial surfaces | SISOABA302A |
| | | | Establish ropes for abseiling on artificial surfaces | SISOABA303A | Establish ropes for abseiling on artificial surfaces | SISOABA303A |
| | | | Perform vertical rescues | SISOVTR301A | Perform vertical rescues | SISOVTR301A |
| | | | Guide abseiling on single pitch artificial surfaces | SISOABA304A | Guide abseiling on single pitch artificial surfaces | SISOABA304A |
| | | | | | Instruct abseiling on single pitch artificial surfaces | SISOABA406A |
| **Multi-pitch – Artificial surfaces** | | | | | | |
| | All units listed in Part I – Core Standard, all common abseiling units, all single pitch artificial features units plus | | All units listed in Part I – Core Standard, all common abseiling units, all single pitch artificial features units plus | | All units listed in Part I – Core Standard, all common abseiling units, all single pitch artificial features units plus | |
| | All activity leaders to have minimum of 'instructor' competencies for multi-pitch abseiling | | All activity leaders to have minimum of 'instructor' competencies for multi-pitch abseiling | | | |
| | | | | | Instruct abseiling on single pitch artificial surfaces | SISOABA406A |
| | | | | | Coordinate emergency responses | SISXEMR402A |
| | | | | | Implement and monitor occupational health and safety policies | SISXOHS402A |

| Activity type | Abseiling Assistant guide (Assistant Leader) Units describing skills and knowledge | Code (or equivalent) | Abseiling guide (Leader) Units describing skills and knowledge | Code (or equivalent) | Abseiling Instructor (Leader) Units describing skills and knowledge | Code (or equivalent) |
|---|---|---|---|---|---|---|
| | | | | | Instruct abseiling on multi pitch artificial surfaces | SISOABA407A |

## Climbing natural surfaces competencies

The following table outlines the recommended level of competence activity leaders *should* have when leading **climbing** on **natural surfaces**:

| Activity type | Climbing Assistant guide (Assistant Leader) Units describing skills and knowledge | Code (or equivalent) | Climbing guide (Leader) Units describing skills and knowledge | Code (or equivalent) | Climbing Instructor (Leader) Units describing skills and knowledge | Code (or equivalent) |
|---|---|---|---|---|---|---|
| **Common climbing units** | | | | | | |
| | Operate communications systems and equipment | PUAOPE002B | Operate communications systems and equipment | PUAOPE002B | Operate communications systems and equipment | PUAOPE002B |
| | | | Plan for minimal environmental impact | SISOOPS304A | Plan for minimal environmental impact | SISOOPS304A |
| | | | Establish belays for climbing on natural surfaces | SISOCLN303A | Establish belays for climbing on natural surfaces | SISOCLN303A |
| | | | Apply climbing skills on natural surfaces | SISOCLN302A | Apply climbing skills on natural surfaces | SISOCLN302A |
| **Single pitch 'Top-rope Climbing' with alternative access to top of pitch – Natural surfaces** | | | | | | |
| | All units listed in Part I – Core Standard, all common climbing units plus | | All units listed in Part I – Core Standard, all common climbing units plus | | All units listed in Part I – Core Standard, all common climbing units plus | |
| | Apply climbing skills on natural surfaces | SISOCLN302A | | | | |
| | Demonstrate top rope climbing skills on natural surfaces | SISOCLN201A | Demonstrate top rope climbing skills on natural surfaces | SISOCLN201A | | |
| | | | Guide top rope climbing activities on natural surfaces | SISOCLN304A | Guide top rope climbing activities on natural surfaces | SISOCLN304A |

| Activity type | Climbing Assistant guide (Assistant Leader) Units describing skills and knowledge | Code (or equivalent) | Climbing guide (Leader) Units describing skills and knowledge | Code (or equivalent) | Climbing Instructor (Leader) Units describing skills and knowledge | Code (or equivalent) |
|---|---|---|---|---|---|---|
| | | | Perform vertical rescues | SISOVTR301A | Perform vertical rescues | SISOVTR301A |
| | | | | | Instruct top rope climbs on natural surfaces | SISOCLN409A |
| **Single-pitch lead climbing or Single pitch 'top rope climbing' with no alternative access to top of pitch – Natural surfaces** | | | | | | |
| | All units listed in Part I – Core Standard, all common climbing units plus | | All units listed in Part I – Core Standard, all common climbing units plus | | All units listed in Part I – Core Standard, all common climbing units plus | |
| | All activity leaders to have minimum of 'guide' competencies for lead climbing | | Apply single pitch lead climbing skills on natural surfaces | SISOCLN405A | Apply single pitch lead climbing skills on natural surfaces | SISOCLN405A |
| | | | Guide lead climbing activities on single pitch natural surfaces | SISOCLN408A | Guide lead climbing activities on single pitch natural surfaces | SISOCLN408A |
| | | | Perform vertical rescues | SISOVTR301A | Perform vertical rescues | SISOVTR301A |
| | | | Coordinate emergency responses | SISXEMR402A | Coordinate emergency responses | SISXEMR402A |
| | | | Implement and monitor occupational health and safety policies | SISXOHS402A | Implement and monitor occupational health and safety policies | SISXOHS402 |
| | | | | | Instruct lead climbing on single pitch natural surfaces | SISOCLN411A |
| **Multi-pitch' lead climbing – natural surfaces** | | | | | | |
| | All units listed in Part I – Core Standard, all common climbing units, all single pitch natural features units plus | | All units listed in Part I – Core Standard, all common climbing units plus | | All units listed in Part I – Core Standard, all common climbing units plus | |
| | All activity leaders to have a minimum of 'guide' single | | Apply single pitch lead climbing skills on natural surfaces | SISOCLN405A | Apply single pitch lead climbing skills on natural surfaces | SISOCLN405A |

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| Activity type | Climbing Assistant guide (Assistant Leader) Units describing skills and knowledge | Code (or equivalent) | Climbing guide (Leader) Units describing skills and knowledge | Code (or equivalent) | Climbing Instructor (Leader) Units describing skills and knowledge | Code (or equivalent) |
|---|---|---|---|---|---|---|
| | pitch climbing competencies. | | | | | |
| | | | Apply multi pitch lead climbing skills on natural surfaces | SISOCLN406A | Apply multi pitch lead climbing skills on natural surfaces | SISOCLN406A |
| | | | Establish belays for multi pitch climbing on natural surfaces | SISOCLN407A | Establish belays for multi pitch climbing on natural surfaces | SISOCLN407A |
| | | | Guide lead climbing activities on multi pitch natural surfaces | SISOCLN410A | Guide lead climbing activities on multi pitch natural surfaces | SISOCLN410A |
| | | | Perform complex vertical rescues | SISOVTR402A | Perform complex vertical rescues | SISOVTR402A |
| | | | Coordinate emergency response | SISXEMR402A | Coordinate emergency response | SISXEMR402A |
| | | | Implement and monitor occupational health and safety policies | SISXOHS402A | Implement and monitor occupational health and safety policies | SISXOHS402A |
| | | | | | Instruct lead climbing on multi pitch natural surfaces | SISOCLN512A |

## Climbing artificial surfaces competencies

The following table outlines the recommended level of competence activity leaders *should* have when leading **climbing** on **artificial surfaces**:

| Activity type | Climbing Assistant guide (Assistant Leader) Units describing skills and knowledge | Code (or equivalent) | Climbing guide (Leader) Units describing skills and knowledge | Code (or equivalent) | Climbing Instructor (Leader) Units describing skills and knowledge | Code (or equivalent) |
|---|---|---|---|---|---|---|
| **Common climbing units** | | | | | | |
| | Operate communications systems and equipment | PUAOPE002B | Operate communications systems and equipment | PUAOPE002B | Operate communications systems and equipment | PUAOPE002B |
| | | | Plan for minimal environmental impact | SISOOPS304A | Plan for minimal environmental impact | SISOOPS304A |

| Activity type | Climbing Assistant guide (Assistant Leader) Units describing skills and knowledge | Code (or equivalent) | Climbing guide (Leader) Units describing skills and knowledge | Code (or equivalent) | Climbing Instructor (Leader) Units describing skills and knowledge | Code (or equivalent) |
|---|---|---|---|---|---|---|
| **Single-pitch with alternative access to top of pitch - Artificial surfaces** | | | | | | |
| | All units listed in Part I – Core Standard, all common climbing units plus | | All units listed in Part I – Core Standard, all common climbing units plus | | All units listed in Part I – Core Standard, all common climbing units plus | |
| | Apply top rope climbing skills on artificial surfaces | SISOCLA302A | Apply top rope climbing skills on artificial surfaces | SISOCLA302A | Apply top rope climbing skills on artificial surfaces | SISOCLA302A |
| | | | Establish belays for climbing on artificial surfaces | SISOCLA303A | Establish belays for climbing on artificial surfaces | SISOCLA303A |
| | | | Guide top rope climbing activities on artificial surfaces | SISOCLA311 | Guide top rope climbing activities on artificial surfaces | SISOCLA311 |
| | | | Undertake risk analysis of activities | SISXRSK301A | Undertake risk analysis of activities | SISXRSK301A |
| | | | | | Instruct top rope climbing on artificial surfaces | SISOCLA412 |
| | | | | | Coordinate emergency responses | SISXEMR402A |
| | | | | | Implement and monitor occupational health and safety policies | SISXOHS402A |
| | | | | | Manage risk in an outdoor activity | SISOODR404A |
| **'Multi-pitch' -Artificial surfaces** | | | | | | |
| | All activity leaders to have a minimum of 'guide' single pitch artificial climbing competencies. | | All activity leaders to have a minimum of 'instructor' single pitch artificial climbing competencies. | | All activity leaders to have a minimum of 'instructor' single pitch artificial climbing competencies. | |

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# Recognition of competence

## Abseil & Climb recognition pathways

Refer to considerations for recognition pathways outlined in Part I - Core standard.

# Supervision

Appropriate supervision *shall* be provided all times during the activity.

The number of participants permitted to actively participate in an activity *shall* be limited to the number the activity leaders can provide with **direct supervision** to deal with all aspects of the activity.

Spectators or participants currently **non-actively participating** *should* be located in a **waiting area** that reduces the likelihood:

- of a fall from height
- being struck from a falling object and/or
- they interfere with the conduct of the activity.

Spectators or participants currently **non-actively participating** *should* where necessary be supervised independently.

## Abseiling and climbing group size

Considerations when determining group size *shall* include but *are not limited to*:

- site capacity
- site related legislation or regulation
- the time allowed to enable all participants in the group to complete the activity is sufficient and realistic and does not compromise safety
- having appropriate supervision for non-actively participating participants.

Also refer to considerations for determining group size outlined in Part I – Core standard.

## Recommended supervision

Considerations for determining supervision requirements *may* include but *are not limited to*:

- characteristics of the site
- the belay system use
- participant training progression and competence
- supervision requirements of participants who are waiting
- time for the activity leaders to allow all participants to undertake the activity being sufficient and realistic
- general considerations for determining supervision requirements outlined in Part I – Core Standard.

The supervision requirements and ratios for programs that train/teach participants to become guides or instructors *should* be determined on a case-by-case basis, according to the progress of those participants towards being fully independent guides or instructors themselves.

## Participants that are non-actively participating

Consideration *shall* be given to the type of supervision participants required when **non-actively participating** (i.e. who are waiting to undertake the activity).

In cases where participants who are **non-actively participating** require **direct supervision**, that supervision *shall* be provided by an activity leader not providing **direct supervision** of an activity or by a **responsible person** as appropriate.

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The following supervision recommendations are based on participants who are **non-actively participating** are either:

- capable of self-managing their own safety in a **waiting area** based on instructions provided o**r**
- are under the supervision of either another activity leader not providing direct supervision of the activity or a **responsible person**.

## Abseiling supervision

Adequate supervision *shall* be provided for participants both actively and non-actively participating.

Recommended supervision for participants actively abseiling and/or belaying, for single pitch or multi-pitch on natural or artificial surfaces:

- **top-belay** with guide or instructor belaying at top:
  - 1 x abseil guide/instructor to 1 x belay system in use.
- **top-belay** with participants used as belayers at top, with backup belayers, while in close proximity to each other:
  - 1 x abseil guide or instructor to a maximum of 2 x belay systems in use.
- **bottom braking**:
  - 1 x abseil guide/instructor dispatching at top and 1 x abseil guide/instructor at the base to a maximum of 1 x active belay system in use.
- **self-belay** (note: is context dependent based on an appropriate leaning progression):
  - 1 x abseil guide/instructor to maximum 2 x belay systems in use.

## Climbing supervision

Adequate supervision *shall* be provided for participants both actively and non-actively participating.

Unless the belayers and climbers are assessed for **competence** ~~it is recommended that~~ they should be considered dependent participants and suitable supervision as recommended below is used.

Recommended supervision for participants actively climbing and/or belaying:

**For single-pitch on natural or artificial surfaces:**

- **top-belay** with belayer at the bottom, with participants as belayers and backup belayers, while climbs in close proximity to each other:
  - 1 x climbing guide/instructor to maximum of 2 x belay systems in use.
- **top-belay** with belayer at the top, with participants as belayers and backup belayers, while climbs in close proximity to each other:
  - 1 x climbing guide/instructor supervising belaying and 1 x assistant abseil guide supervising tying in (at the base) to a maximum of 2 belay systems in use.
- **lead climbing** with participants as belayers and backup belayers, while climbs in close proximity to each other:
  - 1 x climbing guide /instructor to a maximum of 2 belay systems in use.
- **self-belay** (note: is context dependent based on an appropriate leaning progression):
  - 1 x abseil guide/instructor to maximum 2 x belay systems in use.

**For multi-pitch on natural or artificial surfaces:**

- climbing guide/instructor leading climbs; participants belaying:
  - 1 x climbing guide/instructor to a maximum of 4 participants.

**For single-pitch artificial surfaces:**

- **auto-belay** top-belay with climbs in close proximity:
  - 1 x climbing guide/instructor to a maximum of 8 x belay systems in use.
- **lead climbing** with participants as belayers and backup belayers, while climbs in close proximity to each other:

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  o  1 x climbing guide /instructor to a maximum of 2 belay systems in use.

## During activity

### Knowledge of site

The knowledge and experience of the activity site that activity leaders require before leading participants at that site, *should* be considered when allocating activity leader roles.

### Activity information

The information required *shall* be determine prior to the activity.

Required information *shall* be provided at the appropriate time before or during the activity.

Activity information that *should* be provided to participants includes *but is not limited to*:

- site specific risks
- the correct fitting of personal equipment
- the correct use of the belay systems and other any other fall protection systems
- the correct use of the activity's systems
- an appropriate technique(s) for the activity
- the release procedures for belay system or other system
- communications systems and requirements.

Where there is only has one activity leader, the group *shall* be briefed on what action to take to enact the emergency management plan if the activity leader becomes injured or incapacitated.

**Climbing pre-activity information**

Activity information that *should* be provided to participants climbing includes *but is not limited to*:

- the activity information listed above
- method for "falling off" and "recovering to the climb"
- procedures for exiting at the top or being lowered back to the start.

### Falling objects

Procedures to minimise the possibility or impact of falling objects *shall* include *but are not limited to*:

- checking the site and anchors prior to use
- ensuring helmets are worn where relevant as per the **equipment section**
- designating **waiting areas** that reduce the expose to falling objects
- briefing participants on potential hazards and how to avoid dislodging objects
- briefing participants on the appropriate action and warnings to give if an object does fall
- managing groups so that the groups and individual's exposure within potential fall areas is minimised
- minimising movement between areas that are located above others
- supervision of participants while they are located above others.

Procedures to minimise the possibility or impact of falling objects *should* include *but are not limited to*:

- placing belay areas where ever possible so that they are not directly under the climber
- where allowed, remove loose objects that are likely to fall prior to running the activity
- managing spectators and other people moving through the area.

### Falls from height

Considerations for the likelihood of a fall from height include *but are not limited to*:

- how close to the edge people are

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- the slope of the surface being stood on
- the stability and grip of the surface being stood on
- obstacles that need to be negotiated
- abilities of participants including the ability to follow instructions.

To reduce the potential for falls from height, procedures *shall* include:

- ensuring ropes are of a sufficient length for the **pitch**
- monitoring the correct use of belay systems
- monitor attaching to anchors or belay systems
- monitor belay rope(s) to keep them at the appropriate length
- monitor belay systems to remove unnecessary slack in belay ropes
- providing appropriate instruction when the rope is dynamic rope to allow for rope stretch.

To reduce the potential for falls from height, procedures *should* include:

- designating 'no go' areas
- designating **waiting areas**
- designating areas that can only be accessed when attached to the **belay system**
- checking participant's equipment is correctly fitted before they need to rely on the **belay system**
- checking correct attachment to the **belay system**, safety or other systems
- anchoring the **belayer** where the **belay system** relies substantially on the **belayers** weight to arrest a fall and the weight of the abseiler or climber is greater than that of the **belayer.**

## Swinging falls

To reduce the potential for injury or damage to participants or equipment consideration *should* include *but is not limited to* the possibility of participants:

- taking a route on an angle that creates the potential for a pendulum swing if control is lost
- swinging or falling against or across hard, abrasive or sharp objects.

## Entanglement and snags

The activity leader(s) *should* monitor belay rope(s) to keep them at the appropriate length and tension, to prevent the possibility of a slack rope becoming entangled or snagged.

To avoid entanglement in ropes and devices:

- long hair *shall* be secured to stop it being able to be entangled
- loose jewellery (*e.g. bracelets and necklaces*) *should* be removed or secured
- loose clothing and drawstrings *should* be secured.

To avoid being caught or snagged, where there is such a risk:

- rings *should* be removed or tapped over
- body piercings *should* be removed or taped over.

## Anchors and the belay & activity systems

Anchors *shall* be sufficient to protect a fall.

Procedures to ensure that all systems functions as intended *shall* include *but are not limited to*:

- anchor systems are assessed as suitable to support the intended loads
- anchor systems and equipment are suitable for the activity, site and participants
- appropriate knots and connections are used
- regular inspection of all anchors and connections where practicable
- operating procedures and checks used will prevent unplanned disconnection of any part of the system

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- checking attachment and disconnection to the system during the activity.

Anchor systems and belay systems *shall* be rigged for a timely and effective rescue.

Considerations in rigging systems for rescue include *but is not limited to*:

- load direction including multi-direction loads
- load magnitude
- ability to raise the person
- ability to lower the person
- ability to enable an activity leader to complete **contact rescues**.

Where a belay system requires a belayer, either the belayer *shall* be:

- a **competent** belayer or
- under **direct supervision** of an activity leader.

## Abseil belay systems

Equipment and systems to affect a rescue *shall* be available.

Considerations for using a **top belay** system include *but are not limited to*:

- any stretch in the belay system still allows it to effectively protect a fall
- the likelihood of the abseiler spinning and twisting the belay and abseil ropes together which brakes the descent *e.g. free abseiling, abseiling over overhangs*.

Considerations for using **bottom braking** include *but are not limited to*:

- that any stretch in the belay system still allows it to effectively protect a fall
- the belayers competence or ability to be appropriately supervised
- the appropriate equipment required to ensure the descent speed is appropriate
- the activity aims, and objectives being suited to the participants
- any policy requirements of the 'organisation' engaging the provider to deliver activity for its participants (*e.g. education department policy*)
- the appropriateness of the site
- situations where abseilers are free hanging and/or negotiate overhangs is suited to the participants
- the ability of the belayer to see the abseiler at all times
- the likelihood of objects falling on the belayer.

Considerations for using self-belay (*e.g. prussic brake*) include *but are not limited to*:

- the abseiler being **competent** in operating the self-belay system
- having available equipment and systems to affect a rescue
- the stretch in the belay system is too great for another belay system to effectively protect a fall.

## Longer abseils

Considerations for longer abseils include *but are not limited to*:

- appropriate communication systems to enable effective communication between the top and bottom of the pitch
- use of an appropriate belay system that effectively protects a fall including:
  - checking if **bottom braking** is effective over the length of the abseil
  - checking if a two-rope system is effective over the length of the abseil
- use of an appropriate descender device to handle the heat build-up over the length of the abseil
- issues caused by the weight of the rope
- the time the abseiler will be suspended in a harness

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- strategies to manage the varying amount of friction experienced over the length of the abseil, caused by the length and weight of the remaining rope below the abseiler reducing.

## Forward abseiling

S*ome risks associated with forward abseiling are different to backwards abseiling and require additional risk management practices. Forward abseiling can cause significant discomfort to the abseiler.*

Sit harnesses *shall* only be used when they:

- are fit for purpose
- are fitted as per manufactures instructions and not in reversed
- fit the abseiler correctly
- have manufactures endorsement for use in forward abseiling
- will retain the abseiler if they become inverted.

A full body harness *shall* be used when a sit harness is not suitable.

The connection to the **belay system** in every case *shall* be checked by a **competent** person, as the abseiler is unable to fully inspect the connection located behind them.

The abseiling system used *shall* allow a rescue to be swiftly completed without requiring the abseiler to assist.

A self-belay system *shall not* be used for forward abseiling.

Forward abseiling activity leaders *shall*:

- have experience in forward abseiling
- competent in handling the additional complexities when completing forward abseiling.

Additional considerations for forward abseiling include *but are not limited to*:

- having an appropriate learning progression for the participant
- any pre-existing medical conditions
- the abseil site including the length of abseil and slope
- the equipment used, including its impact on the speed of descent
- the pre-activity information and briefings provided.

## Multi-pitch activities

A pre-activity check and ongoing monitoring *shall* be used to confirm that the activity follows and uses the correct route and belay station locations.

Participant management practices *should* be used to prevent overcrowding at belay stations.

Participant's *should* have:

- prior experience in the activity or the opportunity to try a single pitch of the activity, before being committed to completing a **multi-pitch** activity
- the **competence** in using basic skills to temporarily operate out of line of sight or communication of an activity leader.

Procedures *shall* enable appropriate communication between groups at each belay system.

Additional pre-activity information *should* include *but is not limited to* the method of transferring from the activity belay system to a fixed anchor and back to the activity belay system.

## Activity leader fatigue and repetition

Considerations in managing activity leader fatigue and task repetition risks *should* include *but are not limited to*:

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- group sizes and the number of groups
- role rotation
- suitable breaks.

## Activity leader positioning

The activity leader *should*:

- where practicable, have visual contact with the abseiler(s) and/or climber(s)
- be positioned to affect a timely rescue if required.

## Communications

A system of clear & unambiguous verbal and non-verbal communications *shall* be used to manage the activity.

Having line of sight and communication by sound *should* be used as the preferred means of supervising participant's wherever possible.

## Participants belaying

Considerations for when participants operate **belay systems** include *but are not limited to*:

- participants are willing and capable
- appropriate training is provided
- the need for ongoing monitoring to ensure:
    - correct technique is used
    - attention to the task is maintained
    - equipment is used correctly
- backup systems to support the belayer (*e.g. backup belayer*).

## Bouldering

Safety considerations when bouldering include *but are not limited to*:

- the hazards within the fall zones
- the possibility of falling objects
- whether the surface has holds on vertical, inclined and/or overhanging surfaces
- the body orientations that the holds permit
- the need for spotting
- possible use of padding to protect from hazards in the fall zone and/or hard landings
- the supervision required.

Spotting *should* be used while participants are **bouldering** on **natural surfaces**.

An appropriate helmet *should* be worn when **bouldering** and **spotting** on **natural surfaces**.

Where participants are spotting they *shall* be instructed and appropriately supervised.

# Glossary

## Abseil & Climb glossary

**Anchor**: Any load bearing attachment to which any part of a **belay system** is attached.

**Anchor system**: a group of individual **anchor**s to which any part of a **belay system** is attached.

**Artificial surface(s)**: a man-made structure. Also called 'artificial structures' and *may* include but is not limited to portable climbing/abseiling walls, climbing gyms, challenge course elements, fixed climbing/abseiling or other towers, buildings and bridges.

**Autobelay system**: A device that acts as a **belay system** and that provides for the safe retardation of the climber to a controlled rate of descent such that there is no hazardous impact with the ground.

**Belay System**: The means by which the climber or abseiler is protected from an uncontrolled fall or descent.

**Belayer**: A person that operates the **belay system**.

**Bottom belay**: Belaying a climber or abseiler from the bottom of a **pitch.**

**Bushwalking**: walking in natural areas.

**Carabiner**: (refer connector).

**Camping**: the use of a temporary site for overnight camping.

**Caving**: [to be developed]

**Canyoning**: [to be developed]

**Connector(s)**: a metal device used to link components together. A connector may be:

- **Non-locking**: a connector that cannot be locked to prevent it opening.
- **Locking**: a connector that can be manually locked and unlocked to reduce the possibility of it opening
- **Auto-locking**: a connector that will automatically lock to prevent it from opening and requires two or more deliberate actions to unlock.

  Connectors include *but is not limited to*:

  **Carabiner**: a metal connector with a spring-loaded gate specifically designed and manufactured for use in abseiling and climbing safety systems. There is range of carabiner designs with differing features. This standard may refer to specific designs of carabiners for use in specific contexts. Carabiner design types include but are not limited to:

    o **Non-locking**: a carabiner with spring-loaded gate that cannot be locked to prevent it opening.
    o **Screw Gate**: a locking carabiner with a threaded sleeve over the spring-loaded gate which has to be manually locked or unlocked
    o **Auto Locking**: a locking carabiner which will automatically lock to prevent it from opening when the spring-loaded gate is closed. It requires two or more deliberate actions to unlock.
    o **Captive Eye**: a carabiner with a closed section or captive pin that promotes proper load alignment. It maybe locking or non-locking.

  **Screwlink**: (also known as a Tube Nut Connector, Quicklink or Maillon). Various shaped metal connectors with an opening closed by a threaded sleeve.

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Note: Two opposed **non-locking** carabiners (e.g. 2 snap links with opposite gate orientations) in some circumstances *may* offer an equivalent level of security as a **screw gate** carabiner.

**Contact rescue:** a rescue requiring an activity leader to manoeuvre to the persons actual location to physically assist them.

**Dynamic rope**: a specially constructed kernmantle rope that is somewhat elastic under load. The elastic 'stretch' under load is what makes the rope 'dynamic'. (Also see **static rope**.)

**Fall factor**: is the ratio of the height of a fall (h) (measured before the rope or lanyard begins to stretch) and the rope or lanyard length available to absorb the energy of the fall (L). It is used as a representation of the severity of a fall when arrested by a belay system. It is calculated by (h) divided by (L).

**Fall height**: The vertical distance between the climber's or abseiler's lowest body element and the surface beneath.

**Fall zone**: The surface that can be hit by a climber or abseiler falling.

**Feature**: a part of a **natural surface** or **artificial surface**.

**Flash flooding**: is flooding in a localised area with a rapid onset, usually as the result of relatively short intense bursts of rainfall.

**Minimum Breaking Strength** (MBS): is the magnitude of a load that may permanently distort or damage equipment but not cause it to break. (Refer **appendix 3 – equipment load ratings**).

**Master Anchor Point**: (also known as Focal or Power Point) The main connection point of an **anchor** constructed from multiple anchors or pieces of protection providing increased security through redundancy.

**Multi-pitch**: a section of a **natural surface** or **artificial surface** that to ascend, traverse or descend, progress is made by using more than one **pitch** and establishing **belay systems** mid route.

**Natural surface(s)**: the geologic structure and flora that forms a cliff or steep face.

**Non-actively participating:** a participant that is waiting to but is not currently doing the activity.

**Pitch**: a section of a natural surface or artificial surface that requires no greater than one length of rope to ascend, traverse or descend. (Also see **multi-pitch** and **single-pitch**.)

**Safety Factor**: the ratio between the **Minimum Breaking Strength** (MBS) and **Safe Working Load** (SWL) to provide a safety margin. It is expressed as a ratio, example 8:1. (Refer **appendix 3 – equipment load ratings**).

**Safe Working Load** (SWL): is the magnitude of load that does not permanently distort, weaken, damaged or break equipment and includes a safety margin. (Refer **appendix 3 – equipment load ratings**).

**Screwlink**: (refer **connector**).

**Single-pitch**: a section of a **natural surface** or **artificial surface** that requires no greater than one length of rope to ascend, traverse or descend.

**Spotter(s)**: a person or persons who are **spotting**.

**Spotting**: a support process provided by a person, or persons, who offer physical protection of the head and upper body of a person should they fall.

**Stated Strength**: the magnitude of load that is either the **Minimum Breaking Strength** (MBS) or **Safe Working Load** (SWL) marked on equipment or listed in manufacturer's literature. (Refer **appendix 3 – equipment load ratings**).

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**Static rope**: a specially constructed low stretch kernmantle rope, that has low elongation under load. The low elongation or 'stretch' under load is what makes the rope 'static'. (Also see **dynamic rope**.)

**Top belay**: Belaying a climber or abseiler from the top of a **pitch**.

**Waiting areas**: a location in which to wait prior to undertaking the activity, where it is reasonable for a person to not be required to use equipment to protect them from a fall from height.

Also, refer terms and definitions from Part I - Core Standard.

# Abseiling glossary

**Abseiling**: descending vertical or near vertical **natural surfaces** or **artificial surfaces** using ropes and descending friction devices to manage the decent. It is also known as rappelling.

**Abseiling assistant guide**: is an **Assistant Leader** with some of competencies of an Abseil Guide and is able to lead participants in parts of an abseiling activity.

**Abseiling guide**: is a **Leader** able to lead participants throughout an abseiling activity.

**Abseiling instructor**: is a Leader able to teach participants to achieve the skills and knowledge required to participate in an abseiling activity independently.

**Bottom braking:** The controlling of the descent of an abseiler by the **belayer** applying tension to the descent rope thus increasing the friction through the descent device.

**Forward abseiling**: **abseiling** while facing towards the ground.

**Rappelling**: see **abseiling**.

# Climbing glossary

**Bouldering**: A form of climbing activity, limited in height and for which fall safety can be achieved by the provision of an impact absorbing system, by a **spotter** providing control of a fall or by a combination of these measures.

**Climbing**: ascending, traversing or descending vertical or near vertical **natural surfaces** or **artificial surfaces**. (Also see r**ock climbing**).

**Climbing assistant guide**: is an **Assistant Leader** with some of competencies of a Climbing Guide and is able to lead participants in parts of a climbing activity.

**Climbing guide**: is a **Leader** able to lead participants throughout a climbing activity.

**Climbing instructor**: is a **Leader** able to teach participants to achieve the skills and knowledge required to participate in a climbing activity independently.

**Lead climbing**: where the climber ascends a **pitch** while periodically attaching their rope to fixed or removable protection.

**Rock Climbing**: ascending, traversing or descending vertical or near vertical **natural surfaces**. At times also used to describe climbing on **artificial surfaces**. (Also see **climbing**.)

**Sports climbing**: **lead climbing** where the **belay system** relies on permanent fixed anchors for protection. (Also see **traditional climbing**)

**Top-rope climbing**: climbing where the **belay system** has its **anchor** or **anchor system** at the top of the **pitch** and uses either a **top belay** or **bottom belay**.

**Traditional climbing**: **lead climbing** where the **belay system** relies on **anchors** for protection that the climber places during the climb. (Also see **sports climbing**).

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**Via ferrata climbing**: climbing where the safety system does not use a **belayer** and relies on a series of permanent fixed anchors that limit the distance a climber can fall.

# Abseil & Climb Appendices

## Abseil & Climb appendix 1 - Equipment

The equipment required and the appropriate "type" of equipment used is dependent on the specific context of the activity.

Equipment used for abseiling and climbing *may* include *but is not limited to*:

### Abseiling and climbing specific equipment

- o Helmet
- o Harness
- o Descending device
- o Belay device
- o Carabiner
- o Ropes – static and dynamic as appropriate
- o Slings
- o Climbing cord
- o Artificial anchors including but not limited to chocks, cams, nuts, hexes, bolts
- o nut tool
- o Whistle (for communications or emergency)
- o Rescue equipment

Rescue equipment *may* include *but is not limited to*:

- o Additional rope
- o Pulleys
- o Ascenders
- o Prusik loops
- o Slings
- o Climbing cord
- o Carabiners
- o Belay device
- o Knife suitable for cutting ropes (preferably on a lanyard)

### Abseiling specific equipment

Specific equipment for abseiling *may* include *but is not limited to*:

- o Gloves

### Climbing specific equipment

Specific equipment for climbing *may* include *but is not limited to*:

- o Gloves
- o Climbing shoes
- o Chalk bag

### Bouldering specific equipment

Specific equipment for climbing *may* include *but is not limited to*:

- o Crash pads or padding

### General equipment

**Emergency/rescue**

- o Documentation (see Part 1 – Core Standard 5.1 activity leader required documentation)

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- Emergency communication equipment (see Part 1 – Core Standard 4 emergency communication)
- First aid kit in waterproof storage (see Part 1 – Core Standard - 6.3 first aid equipment and medication)
- A waterproof method of storing and carrying documentation and communications equipment
- Specific activity context equipment required
- Emergency shelter where appropriate for the context
- Emergency equipment to keep a patient warm (g. mat, sleeping bag) where appropriate for the context
- Signalling device(s) g. mirror, flares

## Activity Leaders

- communications equipment (standard communication rather than emergency communication where this differs) and spare batteries or backup "power banks"
- relevant maps and navigation information
- a waterproof method of storing and carrying maps and navigation information
- compass and/or other navigation aids g. GPS
- pen/pencil and blank writing paper
- watch or equipment suitable to tell and measure time for first aid purposes
- head torch and spare batteries
- same as for participant

## Participant

- personal medications (including for asthma and anaphylaxis)
- personal hygiene requirements
- clothing appropriate to the weather conditions
- sun hat
- sunglasses
- spare prescription glasses
- sunscreen

## Group

- backpack to carry equipment
- trowel for toileting
- toilet paper
- hand sanitiser
- water purification 'system'
- repair kit
- food for duration plus spare
- rubbish bags
- multi-tool with knife
- sunscreen
- insect repellent
- Refer Part I - Core Standard for first aid kit common content.

## Multi- pitch activities

- small personal backpacks to carry person equipment
- inter-group communication equipment (e.g. portable two-way radios)

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# Abseil & Climb appendix 2 – Equipment & relevant standards

Fixed and mobile artificial climbing and abseiling walls:

- o AS2316.1—2009 - Part 1

Equipment and the relevant standards:

- o Accessory cord (EN 564)
- o Braking devices (EN 15151-1, EN 15151-2)
- o Carabiners or other connectors (EN 362, EN 12275, AS/NZS 1891.4 or ISO 10333-5)
- o Chocks (EN 12270)
- o Crash pads/padding (AS2316.1—2009 - Part 1, UIAA 161-3)
- o Descending devices (EN 341)
- o Energy absorbing systems EN 958
- o Frictional anchors EN 12276
- o Helmets (EN 12492)
- o Harnesses (EN 358, EN 361, EN 813, EN 12277, AS/NZS 1891.4 or equivalent)
- o Lanyards (EN 354)
- o Rock anchors (EN 959)
- o Rope clamps EN 567
- o Rope – dynamic (EN 892)
- o Rope – static (EN 1891, AS 4142.3, CI 1801)
- o Personal fall protection equipment - anchor devices (EN 795)
- o Pitons (EN 569)
- o Pulleys (EN 12278)
- o Slings (EN 566, AS 1353 (series) or AS/NZS 1891.4)

## List of relevant standards

**AS/NZS**

- o 1353 Flat synthetic-webbing slings Product specification
- o 1891 Industrial fall-arrest systems and devices
- o 1891.4 Part 4: Selection, use and maintenance
- o 2316.1—2009 Artificial climbing structures and challenge courses Part 1: Fixed and mobile artificial climbing and abseiling walls.
- o 2512 Methods of testing protective helmets
- o 2512.1 Part 1: Definitions and headforms

**CI**

- o 1801 Low Stretch And Static Kernmantle Life Safety Rope

**EN**

- o 341 Personal protective equipment against falls from a height—Descender devices
- o 354 Personal protective equipment against falls from a height—Lanyards
- o 358 Personal protective equipment for work positioning and prevention of falls from a height—Belts for work positioning and restraint and work positioning lanyards
- o 361 Personal protective equipment against falls from a height—Full body harnesses
- o 362 Personal protective equipment against falls from a height—Connectors
- o 564 Mountaineering equipment—Accessory cord—Safety requirements and test methods
- o 566 Mountaineering equipment—Slings—Safety requirements and test methods
- o 567 Mountaineering equipment—Rope clamps—Safety requirements and test methods
- o 569 Mountaineering equipment. Pitons. Safety requirements and test methods
- o 795 Personal fall protection equipment. Anchor devices
- o 813 Personal fall protection equipment—Sit harnesses

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- o 892 Mountaineering equipment—Dynamic mountaineering ropes—Safety requirements and test methods
- o 958 Mountaineering equipment. Energy absorbing systems for use in klettersteig (via ferrata) climbing. Safety requirements and test methods
- o 959 Mountaineering equipment. Rock anchors. Safety requirements and test methods
- o 12270 Mountaineering equipment. Chocks. Safety requirements and test methods
- o 12275 Mountaineering equipment—Connectors—Safety requirements and test methods
- o 12276 Mountaineering equipment. Frictional anchors. Safety requirements and test methods
- o 12277 Mountaineering equipment—Harnesses—Safety requirements and test methods
- o 12278 Mountaineering equipment—Pulleys—Safety requirements and test methods
- o 12492 Mountaineering Equipment - Helmets For Mountaineers - Safety Requirements And Test Methods
- o 15151-1 Mountaineering equipment. Braking devices. Braking devices with manually assisted locking, safety requirements and test methods
- o 15151-2 Mountaineering equipment. Braking devices. Manual braking devices, safety requirements and test methods
- o 1891 Personal protective equipment for the prevention of falls from a height—Low stretch kernmantel ropes

**ISO**

- o 10333 Personal fall-arrest systems
- o 10333-5 Part 5: Connectors with self-closing and self-locking gates

UIAA

- 161-3 Crash Pads

# Abseil & Climb appendix 3 – Equipment load ratings

Proper understanding and use of equipment load ratings (**stated strength**) is needed to allow for an appropriate safety margins (**safety factors**) to be used. This ensures that equipment is never overloaded to a point it is in danger of breaking or being damaged.

Manufacturers provide details of the load ratings for equipment either stamped on the equipment or in available documentation. This is called the **Stated Strength**. **Stated Strength** is the magnitude of load that is either the **Safe Working Load** (SWL) or **Minimum Breaking Strength** (MBS).

It is critical to understand the difference between **Safe Working Load** (SWL) and **Minimum Breaking Strength** (MBS) because SWL has a safety factor already applied to it, while MBS does not.

**Safe Working Load** (SWL): is the magnitude of load that does not permanently distort, weaken, damaged or break equipment. It is safe to load equipment to 100% of the SWL.

**Minimum Breaking Strength** (MBS): is the magnitude of a load that may permanently distort or damage a piece of equipment but not cause it to break. An appropriate **safety factor** needs to be applied to the MBS. The MBS is a load, determined by the manufacture, that might not break a piece of equipment but may make it unusable or unsafe to use. Equipment should never be loaded to the MBS, even for testing purposes. Some equipment may be in danger of being overloaded even at less than half the MBS. It should be noted that the stated MBS value is calculated from tests on a selection of items, not on each individual item. It is therefore likely that a small percentage of similar items, (usually less than 1%) will break slightly below their stated MBS value.

**Safety Factor**: The ratio between the **Minimum Breaking Strength** (MBS) and **Safe Working Load** (SWL) which is used to provide a safety margin. It is expressed as a ratio for example 8:1. An appropriate **Safety Factor** is chosen based on the type of equipment and intended use. The **safety factor** applicable may be specified in relevant standards or manufactures instructions. It is recommended to follow known safe practices, manufacturers recommendations, relevant standards or calculated assessments when determining safety factors.

## Examples

### Rope

Recreational 'climbing/abseiling' rope may have the **Stated Strength** provided as a **Minimum Breaking Strength** (MBS). In use, it requires a suitable **Safety Factor** to be selected and applied to the MBS to calculate appropriate SWL.

**Static rope:**

- o Stated strength: 30kN MBS
- o Safety Factor: commonly 8:1
- o Safe Working Load (SWL): 3.75kN (30 divided by 8 = 3.75)

**Flat lifting sling:**

A flat lifting sling may have the **Stated Strength** provided as a **Safe Working Load** (SWL). In use, it can be loaded to 100% of the SWL.

- o Stated strength: 2,000 kg SWL
- o Safety Factor: may or may not be provided by manufacturer
- o Safe Working Load (SWL): 2,000 kg (No calculation required as Stated Strength given as SWL)

The Australian Standard AS1353 states that a 2,000 kg SWL flat lifting sling should have a 8:1 safety factor. If this is the case, then the MBS is 16,000 kg (2,000 times 8 = 16,000).

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## Connectors

Recreational 'climbing/abseiling' connectors may have the **Stated Strength** provided as a **Minimum Breaking Strength** (MBS). In use, it requires a suitable **Safety Factor** to be selected and applied to the MBS to calculate appropriate SWL.

**In-line loaded carabiner:**

- o Stated strength: 24kN MBS
- o Safety Factor: commonly 4:1
- o Safe Working Load (SWL): 6kN (24 divided by 4 = 6)

All equipment needs to have its **Safe Working Load** (SWL) estimated using an appropriate **safety factor** for the context it is being used. They are not to be loaded above their SWL.

**Loaded connectors in non-optimal load situation (e.g. loaded in three or more directions):**

- o Stated strength: 24kN MBS
- o Safety Factor: commonly 4:1 increased to 10:1 to cater for three-way loading
- o Safe Working Load (SWL): 2.4kN (24 divided by 10 = 2.4)

The increased **safety factor** will vary depending on the angles and points at which the carabiner is loaded.

**Case example**

On the 4th of May 2014, in Rhode Island USA, a 45kN carabiner was overloaded and failed with a 6.8kN three-way load, causing 8 circus performers to fall 10m. The subsequent investigation showed that similar carabiners, in new condition, also failed when similarly loaded but easily held 50kN when in-line loaded.

# Kilonewtons (kN) of force vs kilograms (kg) of load (mass)

Newtons, (abbreviated to N) are the metric units of force. A 102kg object applies, approximately, 1,000 N, (1kN) downward force at the surface of the earth, (due to its mass and gravity). One Kilonewton (1 kN) is 1,000 N.

In a simple vertical loading situation, it is generally accurate enough to convert a load mass of 100 kg to a force of 1kN. Forces can exist in any direction, not just up and down. Force is calculated by multiplying mass by acceleration. Gravity at earth's surface produces approximately 10m/s2 of acceleration, (the exact valve varies and is slightly less).

Therefore, equipment rated 1 kN of force equals equipment rated approximately 100kg of load (1,000N divided by 10 = 100kg of load). So 1kN of force = approximately 100kg of load.

## Examples:

SWL 3.75kN force equals approximately 375kg load

- o Calculation: 3.75 times 1,000 = 3,750N with 3,750N divided by 10 = 375 or
- o Calculation: 3.75 times 100 = 375

SWL 2,000kg load equals approximately 20kN force

- o Calculation: 2,000kg times 10 = 20,000N with 20,000N divided by 1,000 = 20 or
- o Calculation: 2,000kg divided by 100 = 20

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